

Master of Science in Earth, Environmental, and Physical Sciences

Planet Earth consists of interacting systems - the lithosphere, biosphere, hydrosphere, and atmosphere - which form the physical foundation of life on Earth and human societies. These systems are changing rapidly due to diverse human activities. The Masters program in Earth, Environmental, and Physical Sciences (EEPS) at Wichita State University offers the opportunity for multidisciplinary and interdisciplinary graduate education and research to investigate the consequences of human actions and to seek wise development and utilization of the resources of our planet. The program combines the talents and expertise of faculty in the disciplines of geology, physics, and environmental science, and supporting fields such as biology and chemistry.

The EEPS program is designed to train a new generation of scientists, professionals, and educators who will be well equipped with general knowledge and skills in methodology, critical and creative thinking in scientific research, and advanced knowledge and skills in geology, environmental science, or physics. Graduates will meet the requirements and challenges of the 21st century to become successful science educators, professionals in industry or government, and/or aspirants to PhD studies.

The EEPS program includes three inter-related disciplines: geology, environmental science, and physics. Multidisciplinary and interdisciplinary education for a candidate in EEPS will be achieved through specially designed course work, research, and other learning opportunities. Three required courses (EEPS 700, 701, and 721) will provide knowledge and skills in scientific methodology, research design, and scientific writing and presentation. In addition, EEPS 702 is required for all students in thesis option and non-thesis option B. Follow up courses (e.g., EEPS 710) and discipline-specific graduate courses will enable students to master advanced knowledge and skills in the field chosen by the student; and discipline-specific or interdisciplinary research projects will foster students' ability to conduct independent research, make scientific presentations, and prepare quality scientific manuscripts.

The program is co-administered by the Departments of Geology and Physics. It offers a variety of options for students pursuing a Masters degree in EEPS -

thesis, non-thesis, and internship. For example, by working on a project in a private company or government agency through internship, a student can gain first-hand experience in the professional workplace; likewise, by taking advanced courses in several fields, a student can broaden his/her scientific background to become a highly qualified science teacher.

Admission Requirements

Applicants for admission in the EEPS master program should have a bachelor's degree in any field of natural sciences. However, applicants with a bachelor's degree outside the field of natural sciences are also encouraged to apply for conditional admission. Motivated candidates can make up background deficiencies early in their EEPS study before gaining full-standing status in the program.

All applicants must also meet the general admission requirements of the Graduate School, which include the submission of the Graduate School Application for Admission, application fee, official transcripts sent directly from all schools attended, a 2.750 GPA or higher (4.000 scale) for the most recent 60 semester hours completed. Applicants who will require a visa status must also submit an acceptable financial statement, as well as an official TOEFL score of 550 or higher (213 on CBT, 79 IBT), sent directly from ETS, OR a minimum overall band score of 6.5 on the IELTS exam, sent directly from the appropriate testing center. Either exam must have been taken within the past two years to be accepted.

Degree Requirements

Upon admission, applicants need to consult with the graduate coordinator of EEPS to evaluate background deficiencies, if any, and to establish a plan of study that best suits the applicant's goals. A Masters degree in EEPS requires satisfactory completion of course work and/or research, which will ensure that students take advantage of the multidisciplinary/interdisciplinary nature of the program. Course work must include at least 18 credit hours at the 700 and 800 levels, among which at least 8 hours must be EEPS required courses (including two credit hours of EEPS 700, Technical Sessions). The required courses focus on methodologies, critical and creative thinking in scientific research, and issues common to geology, physics, environmental science and related disciplines. To further benefit from the interdisciplinary nature of the program, students are encouraged to take courses in different disciplines and other supporting courses.

To meet the requirement of differing career goals, students may choose a thesis, internship, or non-thesis option for degree completion. The thesis and internship topic may be in geology, environmental science, or physics; such activity may be interdisciplinary, involving two or more fields.

Thesis Option

Thesis research is recommended for students who will pursue PhD study or seek professional employment after graduation. Students choosing thesis research must present a research proposal to the EEPS faculty to ensure that the research has merit and can be completed in a reasonable period of time. After completing the written thesis, the student must give a public oral defense of it. A total of 30 credit hours is required, of which a maximum of 6 thesis credit hours can be counted toward the degree.

Internship Option

Students wishing to gain interdisciplinary and/or professional skills in the fields covered by the EEPS program can participate in applied and/or basic research internship projects with industry or government agencies. Enrollment in internship projects requires an approved proposal. Completion of an internship for graduation requires a formal oral presentation of the internship activity and a written report. A total of 33 credit hours is required, of which a maximum of 6 internship credit hours can be counted toward the degree.

Non-Thesis Option

This option is an alternative to thesis research or internship for degree requirements. Two plans of study are available under this option:

Plan A – students are not required to take research courses, and a total of 36 credit hours is required. This plan is recommended for students who do not desire a career in industry or post-secondary education.

Plan B – students are required to take research courses and conduct research under the supervision of an EEPS faculty member. A faculty-reviewed, final report is required. A total of 33 credit hours is required, of which a maximum of three research credit hours can be counted toward the degree.

Faculty

Elizabeth C. Behrman, Professor, Physics, PhD, University of Illinois, 1985

William D. Bischoff, Professor, Geology, and Dean, Fairmount College of Liberal Arts and Sciences, PhD, Northwestern University, 1985

Hussein Hamdeh, Professor, Physics, PhD, Northeastern University, 1986

James C. Ho, Professor, Physics, PhD, University of California at Berkeley, 1966

Salvatore J. Mazzullo, Professor, Geology, PhD, Rensselaer Polytechnic Institute, 1974

Collette D. Burke, Associate Professor, Geology, PhD, University of Wisconsin-Milwaukee, 1983

Jason Ferguson, Associate Professor, Physics, PhD, University of Kentucky, 1997

John C. Gries, Associate Professor and Chairperson, Geology, PhD, University of Texas at Austin, 1970

William Parcell, Associate Professor, Geology, PhD, University of Alabama, 2000

Syed Taher, Associate Professor, Physics, PhD, Washington State University, 1974

Waldemar Axmann, Assistant Professor, Physics, PhD, Kansas State University, 2002

For More Information

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